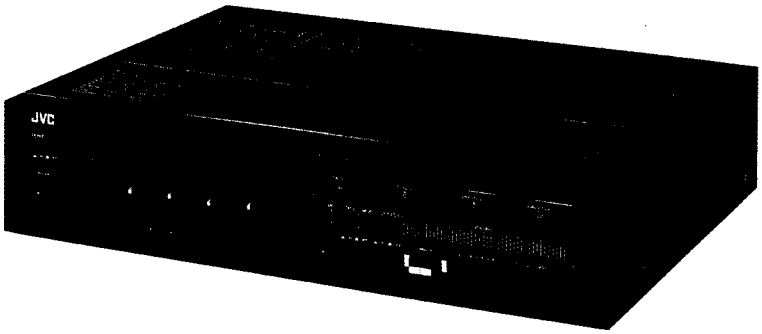
JVC

SERVICE MANUAL

STEREO AMPLIFIER

MODEL A-E50B



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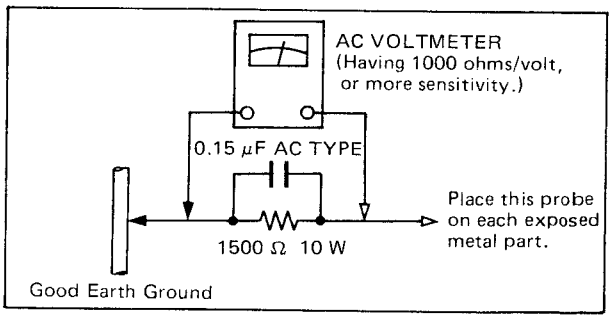
Parts List . . . . . Separate-volume Insertion

This manual combines two single volumes; Service manual and Parts list.

No. 2735
Mar. 1984

1. Safety Precautions

1. The design of this product contains special hardware, many circuits and components specially for safety purposes.
   For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and/or the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard.
   When service is required, the original lead routing and dress should be observed, and they should be confirmed to be returned to normal, after re-assembling.
5. Leakage current check
   (Safety for electrical shock hazard)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the Products (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).
   - Alternate check method.
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1500 ohms 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).


AC VOLTMETER
(Having 1000 ohms/volt, or more sensitivity.)
0.15 μF AC TYPE
1500 Ω 10 W
Place this probe on each exposed metal part.
Good Earth Ground

2. Features

1. Tact switch for soft-touch source selection.
2. DCS (Direct Call System) for prompt listening to any input.

3. Specifications

Output Power : **35 watts per channel, min. RMS, both channels driven. into 8 ohms from 40 Hz to 20 kHz, with no more than 0.5 % total harmonic distortion**
37 watts per channel, min. RMS, both channels driven, into 8 ohms at 1 kHz with no more than 0.7% total harmonic distortion

Total Harmonic Distortion: 0.5 % at Rated output, from 40 Hz to 20 kHz, 8 ohms

Power Bandwidth : 10 Hz – 30 kHz (IHF, both channels driven, 8 ohms, 0.5 % THD)

Frequency Response : 10 Hz – 30 kHz $^{+1.0\ dB}_{-3\ dB}$

Tone Controls
- BASS : 100 Hz ± 8 dB
- TREBLE : 10 kHz ± 8 dB

Input Sensitivity/Impedance
- PHONO : 2.5 mV/47 kohms
- DAD, TUNER, AUX, TAPE : 150 mV/30 kohms

Phono Equalizer Deviation: ±1.0 dB (40 Hz – 15 kHz)
Phono Overload : 70 mV (1 kHz, 0.1 %)
Signal to Noise Ratio ('66 IHF/'78 IHF/DIN)
- PHONO : 70 dB/78 dB/65 dB
- DAD, TUNER, AUX, TAPE : 95 dB/73 dB/68 dB

Loudness Control (Volume Control at –30 dB position) : +5 dB at 100 Hz, +3.5 dB at 10 kHz
Dimensions : 75 (H) x 340 (W) x 270 (D)mm (3" x 13-3/8" x 10-5/8")
Weight (Net) : 4.0 kg (8.8 lbs)

Design and specifications subject to change without notice.

Power Specifications

Area	Line Voltage & Frequency	Power Consumption
U.S.A. & Canada	AC 120 V ∿, 60 Hz	145 watts, 180 VA
Continental Europe	AC 220 V ∿, 50 Hz	100 watts
U.K. & Australia	AC 240 V ∿, 50 Hz	100 watts
Other Countries	AC 110/120/220/240 V ∿ selectable, 50/60 Hz	100 watts

4. Service Precautions

1. Before repairing, be sure to discharge the large electrolytic capacitors across a resistor of about 100 ohms/1 watt.

■ When disassembling

1. When replacing a power transistor or IC, be sure to apply silicone grease to the section of a new transistor of IC which is in close contact with the heatsink, then mount it.
2. When removing or stretching wires on the P.C. Board, be sure to restore them to their original routing as far as possible.

5. Removal Procedures

■ Front panel

1. Remove screws ① , ② , and ④ from the chassis base side (removal of screw ③ is not required).
2. As shown in Fig. 2, extract plastic rivet Ⓒ at the front-panel upper side and plastic revet Ⓓ through Ⓕ on the function LED circuit board.
3. Detach securing catches ⓐ through ⓔ indicated in Fig. 2. and withdraw the front panel as shown in Fig. 3.

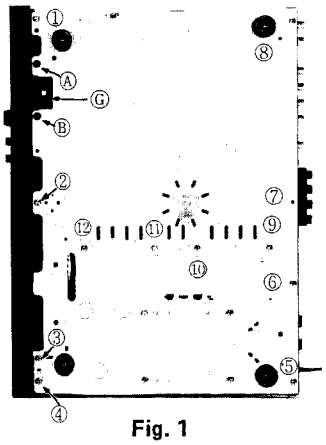


Fig. 1

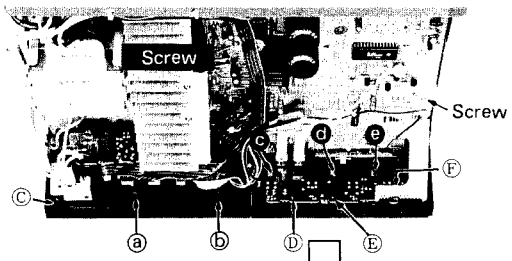


Fig. 2

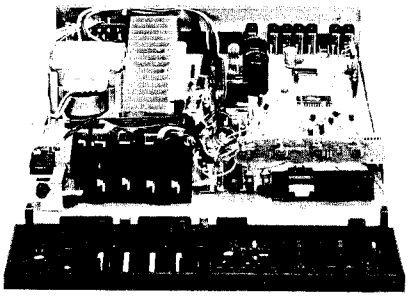


Fig. 3

■ Chassis base

1. Remove plastic rivet Ⓐ and Ⓑ , as well as screws ① through ⑫ on the chassis base and two screws on the circuit board.
2. While exercising care not to damage the wiring, pry up catch Ⓖ and open the chassis base as shown in Fig. 4.

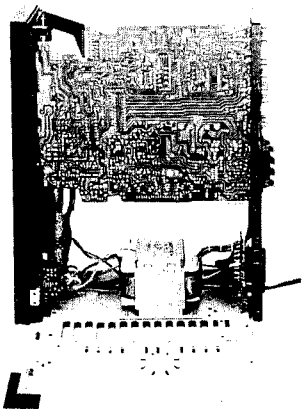
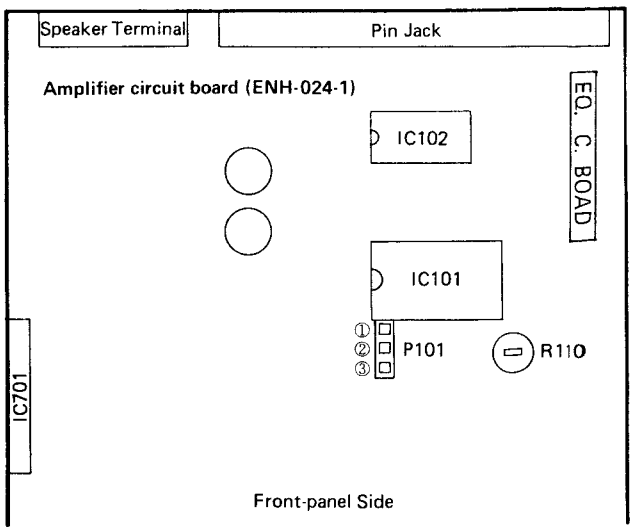


Fig. 4

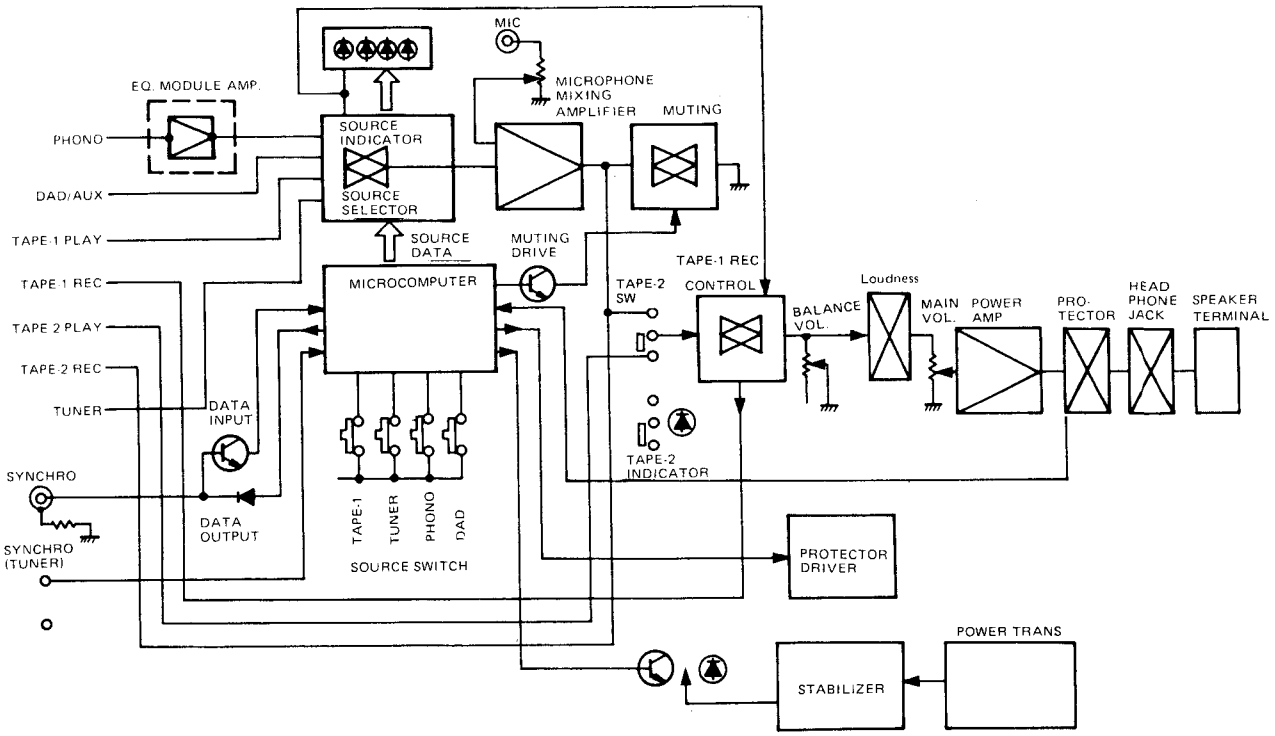
6. Adjustment Procedures

■ Microcomputer clock frequency adjustment

1. Confirm that the power supply is OFF, and cause shorting between pin ② and pin ③ of test point P101.
2. Turn the power supply ON, and connect the frequency counter between pin ③ (GND) and pin ① (OSC) of test point P101.
3. Adjust the semifixed resistor (R110), and set the frequency at 4.5 kHz ± 50 Hz.
4. After adjustment is completed, be sure to release shorting between pins ② and ③

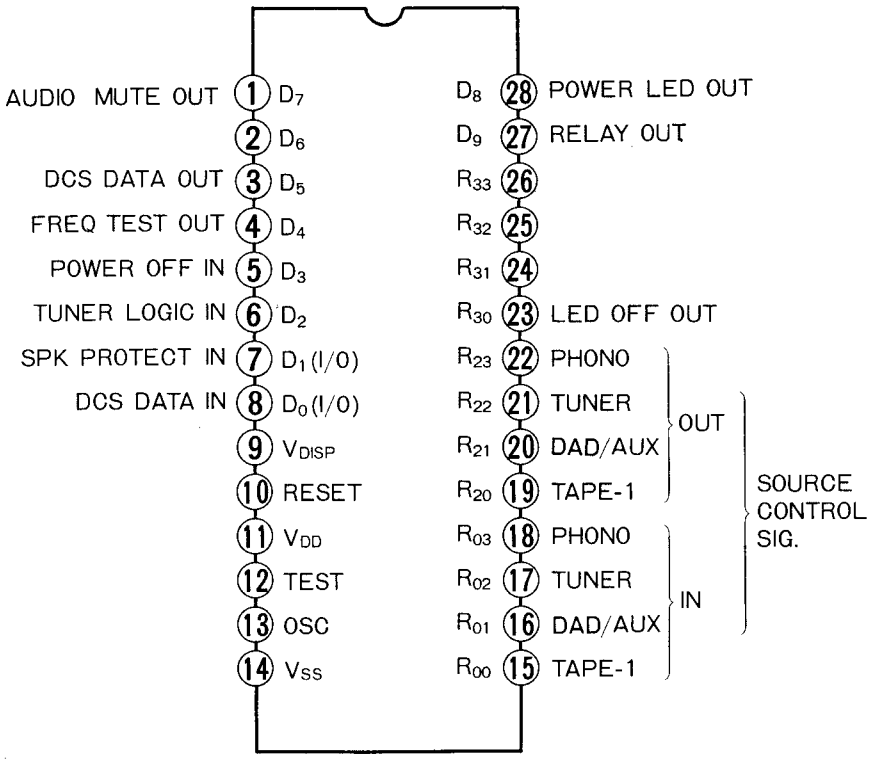


7. Block Diagram



8. Guidance to Repairing

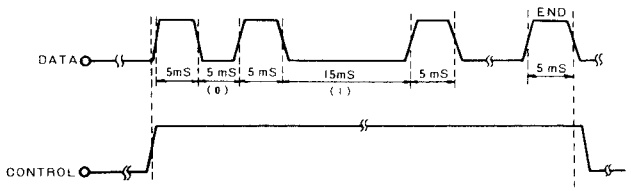
■ IC 101 (HD 38702 A 32) pin functions



■ Data transmission method

Two types of DCS are procided—one is the SYNCHRO TUNER terminal (φ2.5) exclusively for the TUNER; the other is the SYNCHRO terminal (φ3.5) for other equipment.
The SYNCHRO TUNER terminal exclusively for the TUNER differs from the following DCS—namely, an "open collector" status is normally provided on the TUNER side. When the "preset station" or another button is pressed on the TUNER side, the "L" level is maintained for about 10 ~ 100 m sec., resulting in switching the source.
The SYNCHRO terminal (φ3.5), connected to the BUS LINE common with other equipment (L-E50, D-E50, KD-WR90, QL-G90, XL-V2), effects mutual data exchanges by the following data transmission method.

Transmitted data



1 word/1 command structure

Start	b7	b6	b5	b4	b3	b2	b1	b0

Unit Code — Data Key Code — Data Code

$b_4 = 0$ Operation CODE
$b_4 = 1$ Station number or music number code (not used in this model)

■ Signal code list

1) Code list 1 : $b_4 = 0$ (OP = Optional)

(A) DECK

Hexadecinormal	Data code				Function	Key input possessing same meaning
0	0	0	0	0	————	————
1	0	0	0	1	PLAY status created	PLAY
2	0	0	1	0	STOP status created ["STOP (I)" signal]	STOP
6	0	1	1	0	REC PAUSE created after 4-sec. REC MUTE	REC MUTE · PAUSE
9	1	0	0	1	REC PLAY status created	REC · PLAY
E	1	1	1	0	STOP status created only during PLAY	———— "STOP (II)" signal

(B) TURNTABLE

Hexadecinormal	Data code				Function	Key input possessing same meaning
6	0	1	1	0	Tonearm returns to arm rest and turntable STOP status created	———— (ALL STOP)
7	0	1	1	1	"START"	
9	1	0	0	1	Deck saves recording-discontinued signal	———— (NON REC)
A	1	0	1	0	REC PAUSE status created from conditions other than "deck under recording mode"	———— (REC · PAUSE)

(C) AMPLIFIER

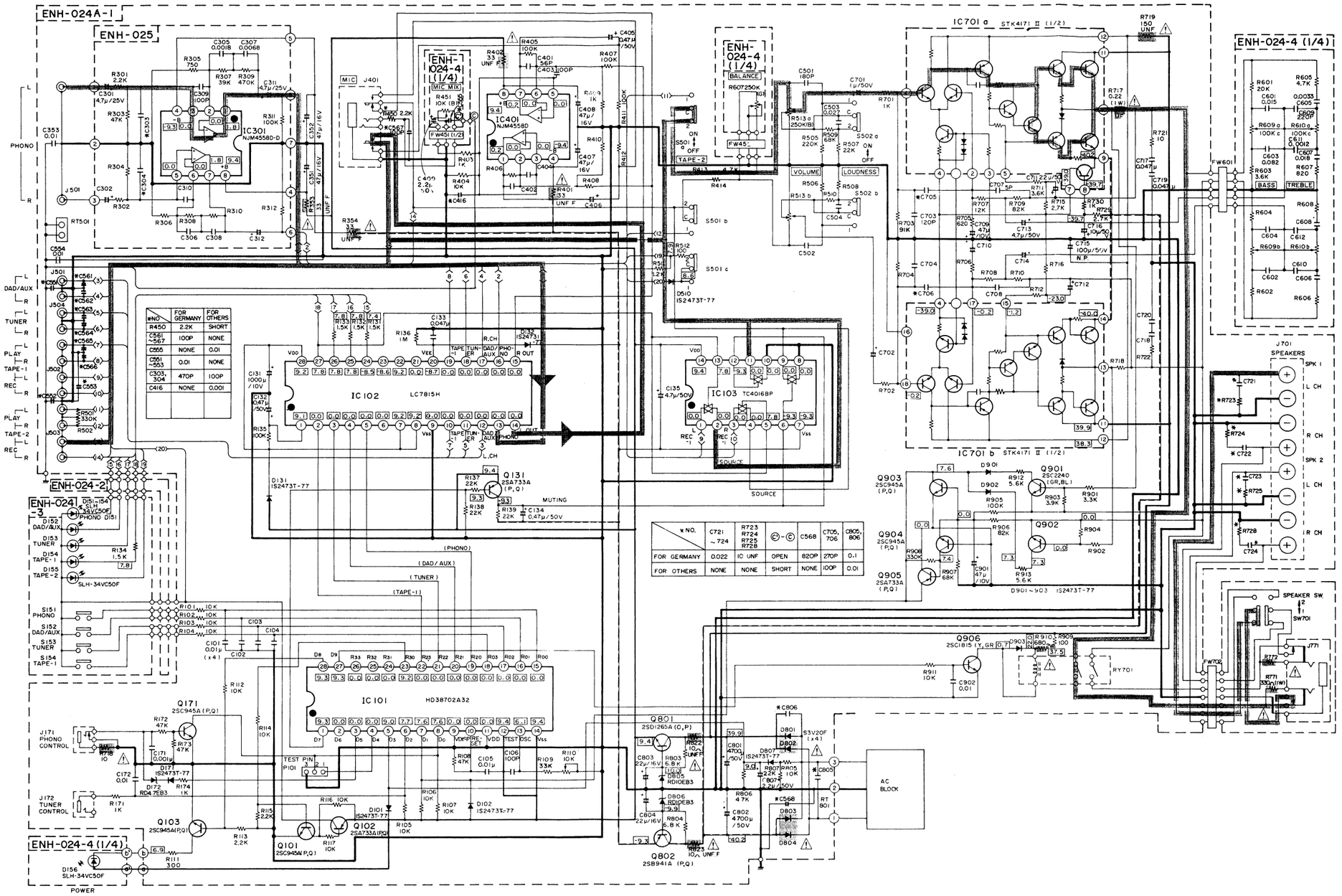
Hexadecinormal	Data code				Function	Key input possessing same meaning
0	0	0	0	0	————	————
1	0	0	0	1	SOURCE switched to PNOHO	PHONO
3	0	0	1	1	SOURCE switched to DAD/AUX	DAD/AUX
4	0	1	0	0	SOURCE switched to TAPE-1	TAPE-1
9	1	0	0	1	———— Edit-recording start signal	————
A	1	0	1	0	SOURCE returned to previous setting [REC (SOURCE)]	———— "REC (SOURCE)"

Code list

	Unit code			
0	0	0	0	
1	0	0	1	DECK
2	0	1	0	CD PLAYER
4	1	0	0	TURNTABLE
5	1	0	1	AMPLIFIER

As is clarified from the above lists, the SYNCHRO terminal uses the BUS LINE common with each piece of equipment; therefore, connecting the remote wire in any sequence among the equipment poses no problem.
Neither the SYNCHRO TUNER terminal nor the SYNCHRO terminal are connected to GROUND;consequently, the DCS fails to function when signal codes are not maintained among the equipment.

9. A-E50B Schematic Diagram



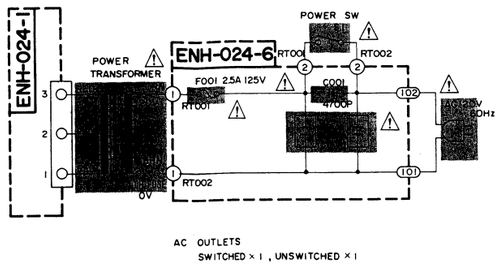
#NO.	FOR GERMANY	FOR OTHERS
R450	2.2K	SHORT
C561 ~567	100P	NONE
C555	NONE	0.01
C551 ~553	0.01	NONE
C303, 304	470P	100P
C416	NONE	0.001

* NO.	C721 ~ 724	R723 R724 R725 R726	Ⓒ-Ⓒ	C568	C705, 706	C805, 806
FOR GERMANY	0.022	I/C UNF	OPEN	820P	270P	0.1
FOR OTHERS	NONE	NONE	SHORT	NONE	100P	0.01

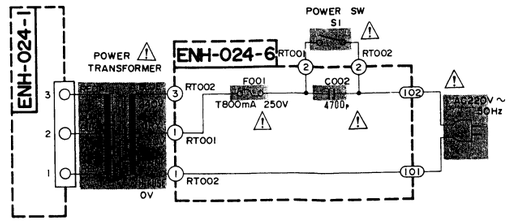
Notes:

1. ——— indicates positive B power supply.
2. – – – – indicates negative B power supply.
3. ▬▬ indicates signal path.
4. When replacing the parts in the darkned area (▬▬) and those marked with ⚠ , be sure to use the designated parts to ensure safety.
5. This is the standard circuit diagram. The design and contents are subject to change without notice.

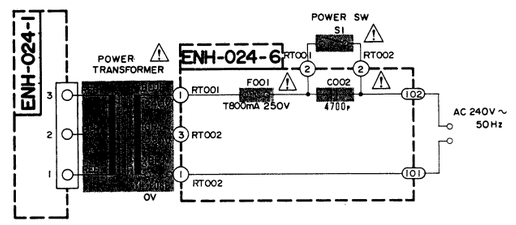
(J) FOR U.S.A. (C) FOR CANADA AC120V 60Hz



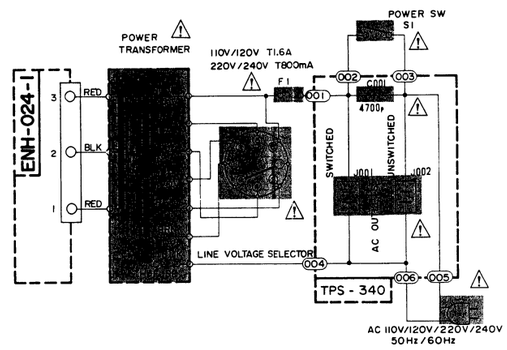
(E) FOR CONTINETAL EUROPE (G) WEST GERMANY AC220V~50Hz



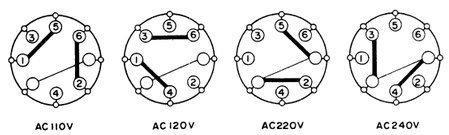
(BS) FOR U.K. (A) FOR AUSTRALIA AC 240V~50Hz



(U) FOR OTHER COUNTRIES (P) FOR U.S.MILITARY AC110V/120V/220V 240V 50/60Hz

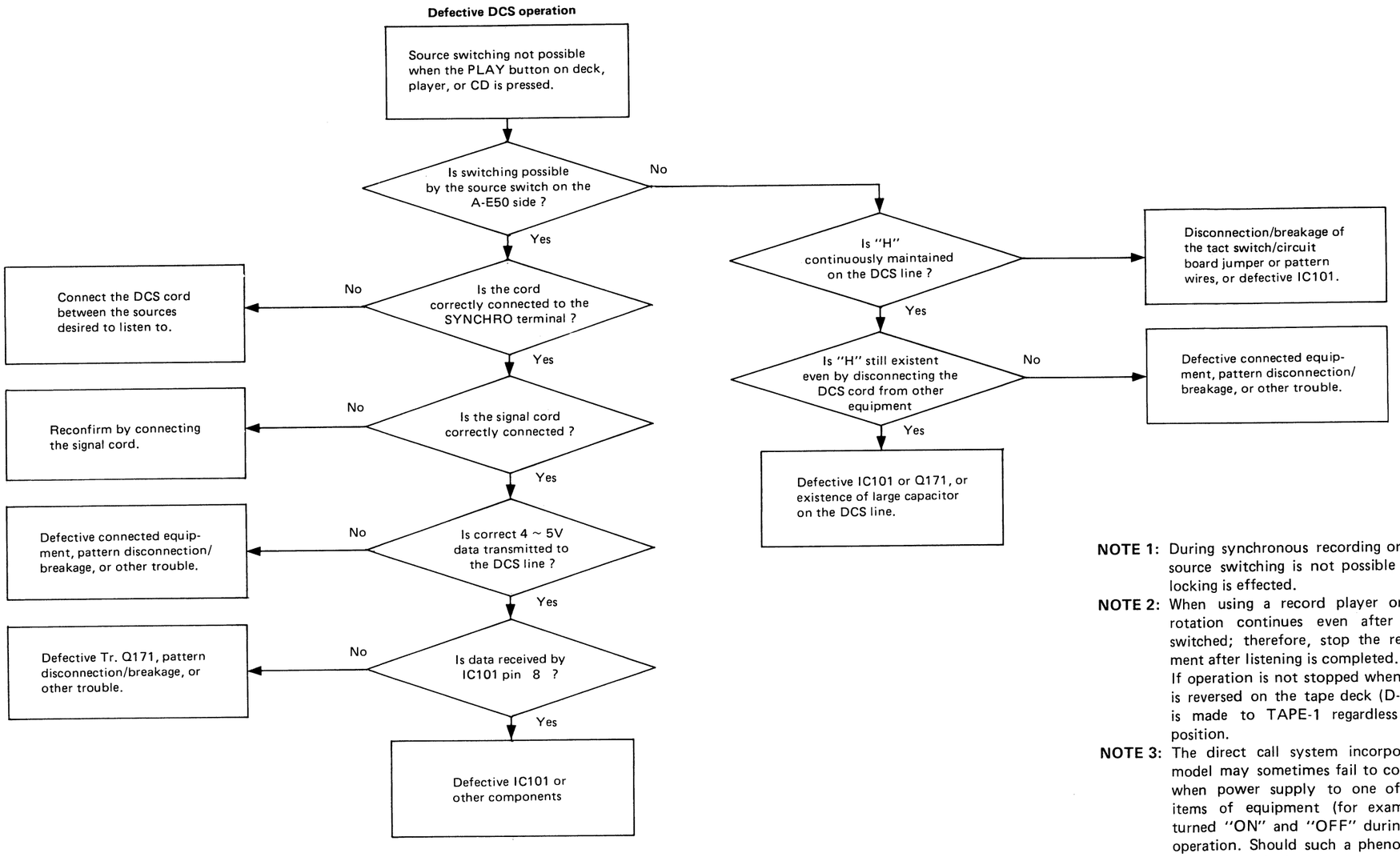


VOLTAGE SELECTOR CONNECTION



	P.C. BOARD ASS'Y		
J.C	ENH-024B	ENH-025A	
U, P, PG	ENH-024C	ENH-025A	TPS-340A
E, A	ENH-024D	ENH-025A	
BS	ENH-024EBS	ENH-025A	
G	ENH-024F	ENH-025B	

■ Troubleshooting


Defective DCS operation
Source switching not possible when the PLAY button on deck, player, or CD is pressed.
Is switching possible by the source switch on the A-E50 side ?
No
Yes
Is the cord correctly connected to the SYNCHRO terminal ?
No
Connect the DCS cord between the sources desired to listen to.
Yes
Is the signal cord correctly connected ?
No
Reconfirm by connecting the signal cord.
Yes
Is correct 4 ~ 5V data transmitted to the DCS line ?
No
Defective connected equipment, pattern disconnection/ breakage, or other trouble.
Yes
Is data received by IC101 pin 8 ?
No
Defective Tr. Q171, pattern disconnection/breakage, or other trouble.
Yes
Defective IC101 or other components
Is "H" continuously maintained on the DCS line ?
Disconnection/breakage of the tact switch/circuit board jumper or pattern wires, or defective IC101.
Yes
Is "H" still existent even by disconnecting the DCS cord from other equipment
No
Defective connected equipment, pattern disconnection/ breakage, or other trouble.
Yes
Defective IC101 or Q171, or existence of large capacitor on the DCS line.

NOTE 1: During synchronous recording or edit-recording, source switching is not possible because source locking is effected.

NOTE 2: When using a record player or a tape deck, rotation continues even after the source is switched; therefore, stop the respective equipment after listening is completed.
If operation is not stopped when the tape travel is reversed on the tape deck (D-E50), switching is made to TAPE-1 regardless of the source position.

NOTE 3: The direct call system incorporated into this model may sometimes fail to correctly function when power supply to one of the connected items of equipment (for example, D-E50) is turned "ON" and "OFF" during the course of operation. Should such a phenomenon develop, press one of the operation buttons (START or PLAY).

When the DCS is defective as shown in the above example, check whether or not signals are being output on the DCS data line.

< **Simplified checking method** >
Attach probes of the tester (for voltage measurement) between the SYNCHRO terminal and the ground, and press the button of the equipment desired to check.
Check whether or not the tester hand instantly shakes and moves to the extreme end.

A-E50B

– MEMO –

JVC

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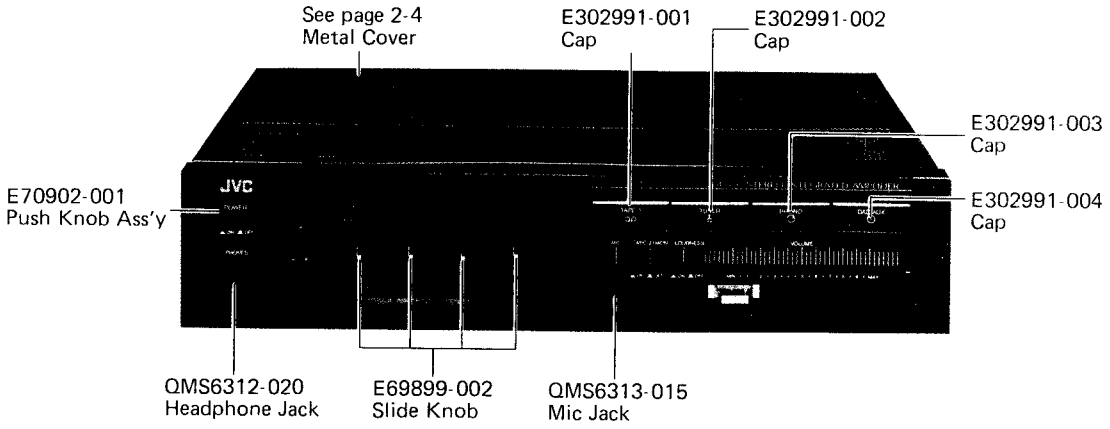
STEREO DIVISION, YAMATO PLANT, 1644, SHIMOTSURUMA, YAMATO-SHI, KANAGAWA-KEN, 242, JAPAN

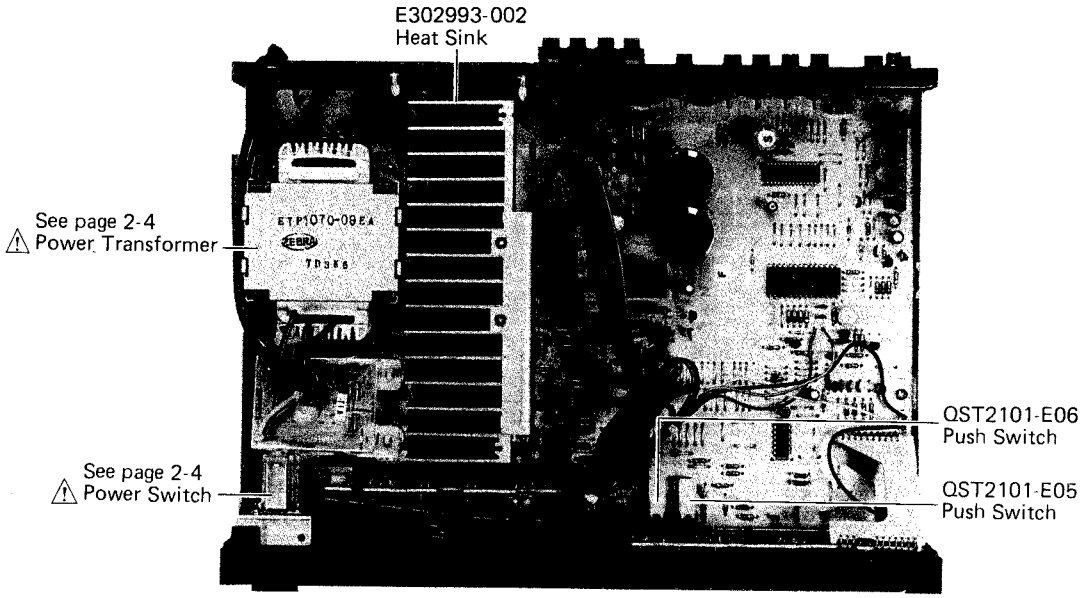
Printed in Japan
8403 N

1. Main Parts Locations

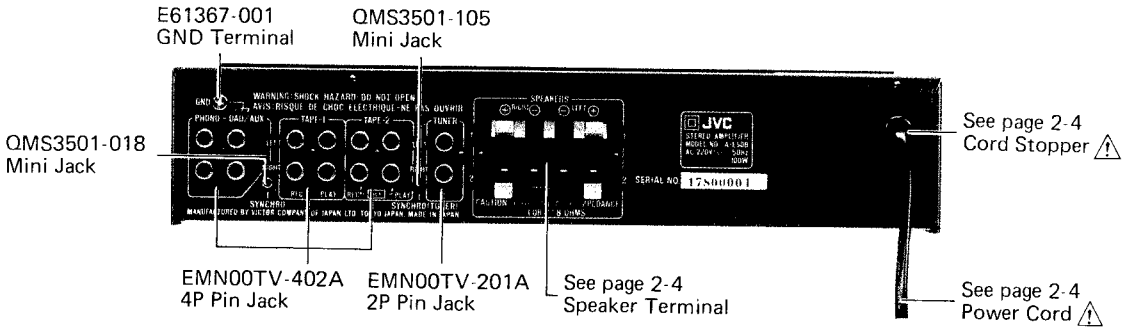
1-(1) Front View



1-(2) Top View



1-(3) Rear View



⚠ : Safety Parts

PARTS LIST

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3-(2) ENH-025☐ Mojulie P.C. Board Ass'y 2-8
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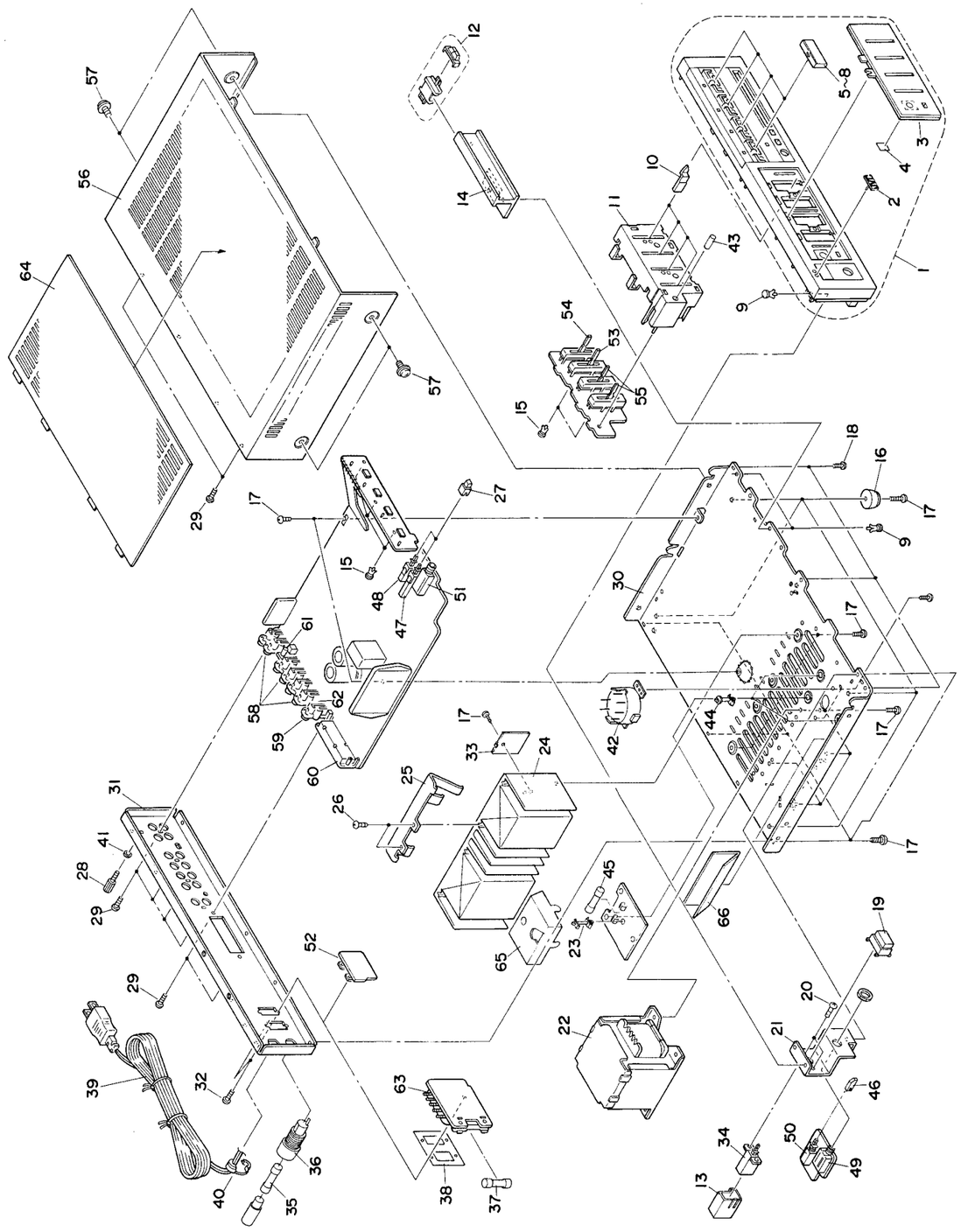
2. Exploded View and Part Numbers



No.	Part Number	Part Name	Q'ty	Description	Area
1	EFP-AE50E	Front Panel Ass'y	1		
2	E70912-001	JVC Mark	1		
3	E70917-003	Window Screen	1		
4	E70140-005	Sheet	1		
5	E302991-001	Cap	1	TAPE-1	
6	E302991-002	Cap	1	TUNER	
7	E302991-003	Cap	1	PHONO	
8	E302991-004	Cap	1	DAD/AUX	
9	E48729-001	Plastic Rivet	3		
10	E69899-002	Slide Knob	4		
11	E303018-002	Back Plate	1		
12	E71326-001	Slide Knob Ass'y	1		
13	E71004-001	Switch Cover	1	E, A, G, BS	
14	E303134-001	Blind	1		
15	E48729-007	Plastic Rivet	5		
16	E47227-021	Foot	4		
17	SBSB3008N	Screw	20		
18	SBSF3008Z	Screw	3		
19	E70902-001	Push Knob Ass'y	1		
20	E65119-001	Screw	2		
21	E70923-001	Switch Bracket	1		
△22	ETP1070-09JA	Power Transformer	1		J, C
	ETP1070-09FA	Power Transformer	1		U, P, PG
	ETP1070-09EA	Power Transformer	1		E, A, G
	ETP1070-09EABS	Power Transformer	1		BS
23	E300796-001	Fastener	1		E, A, G, BS
24	E302993-002	Heat Sink	1		
25	E70925-001	Left Spring	1		
26	SSSB3010N	Screw	2		
27	E69169-002	Push Knob	2		
28	E61367-001	GND Terminal	1		
29	SBSB3008M	Screw	8		
30	E24567-006	Chassis Base	1		J, C
	E24567-007	Chassis Base	1		E, A, G, BS
	E24567-008	Chassis Base	1		U, P, PG
31	E24576-002	Rear Panel	1		J, C
	E24576-006	Rear Panel	1		U, P, PG
	E24576-004	Rear Panel	1		E, A, G, BS
32	SDSB300M	Screw	2		
33	E71391-001	Plate	1		
△34	QSP1106-004	Power Switch	1		J, C, U, P, PG, E, A, G
	QSP1106-004BS	Power Switch	1		BS
△35	QMF51A2-1R0L	Fuse	1		U, PG
	QMF51A2-2R0L	Fuse	1		P
36	QMG0301-003	Fuse Holder	1		U, P, PG
△37	QMF60U1-2R5	Fuse	1		J, C
38	E69589-002	Spacer	1		J
△39	QMP1200-200	Power Cord	1		J, C
	QMP7600-250	Power Cord	1		U, P, PG
	QMP3900-200	Power Cord	1		E, G
	QMP2560-244	Power Cord	1		A
	QMP9017-008BS	Power Cord	1		BS
△40	QHS3876-162	Cord Stopper	1		J, C, U, P, PG, E, A, G
	QHS3876-162BS	Cord Stopper	1		BS
41	WNS3000N	Washer	1		
△42	QSR0085-001U	Voltage Selector	1		U, P, PG
43	E70955-001	Spacer	1		
44	E35422-001	Fastener	3		E, A, G, BS
△45	QMF51A2-1R0L	Fuse	1		E, A, G
	QMF51A2-1R0LBS	Fuse	1		BS
46	E69169-002	Push Knob	1		
47	QST2101-E05	Push Switch	1	TAPE-2	
48	QST2101-E06	Push Switch	1	LOUDNESS	
49	QMS6312-020	Headphone Jack	1		
50	QST2101-E07	Push Switch	1	SPEAKER	
51	QMS6313-015	Mic Jack	1		
△52	QMC0231-004	AC Outlet	1		U, P, PG
53	QVZ5202- 001	Variable	1	BALANCE	
54	QVZ5205-004	Variable	1	MIC MIXING	
55	QVZ5206-001	Variable	2	BASS,TREBL	
56	E24575-001	Metal Cover	1		J, C, U, P, PG
	E24575-002	Metal Cover	1		E, A, G, BS
57	E61660-004	Screw	4		
58	EMN00TV-402A	4P Pin Jack	3		
59	EMN00TV-201A	2P Pin Jack	1		
60	EMB10YV-801A	Speaker Terminal	1		
61	QMS3501-018	Mini Jack	1	PHONE	
62	QMS3501-105	Mini Jack	1	TUNER	
△63	QMC0437-002	2P AC Outlet	1		J, C
64	E24134-006	Grill	1		E, A, G, BS
65	E71775-001	Protect Cover	1		E, A, G, BS
66	E71346-001	Spacer	1		

△ : Safety Parts

The Marks for Designated Areas.

J . . . . . U.S.A.
C . . . . . Canada
E . . . . . Europe
G . . . . . West Germany
A . . . . . Australia
P, PG . . . . . U.S. Military Market
BS . . . . . U.K.
U . . . . . Other Countries

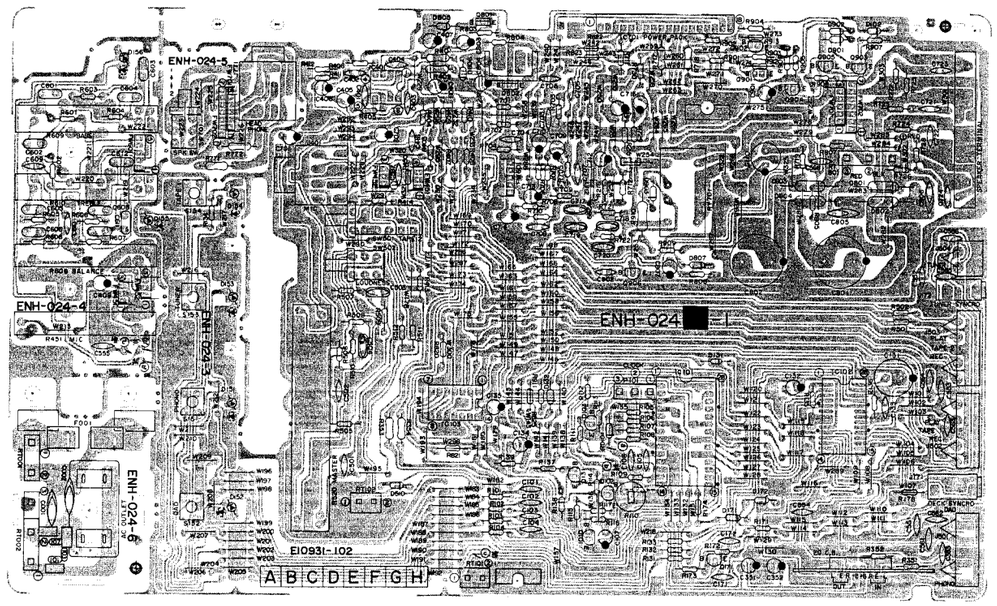
3. Printed Circuit Board Ass'y and Parts List

3-(1) ENH-024☐ Amplifier P.C. Board Ass'y

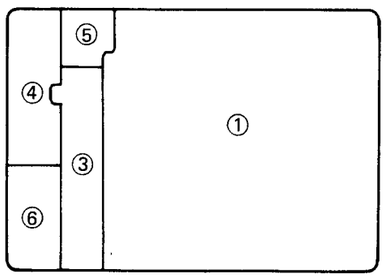
Note: ENH-024☐ varies according to the area employed. See note (1) when placing on order.

Note (1)

P.C. Board Ass'y	Designated Areas
ENH-024 [B]	U.S.A. & Canada
ENH-024 [C]	U.S. Military Market & Other Countries
ENH-024 [D]	Europe & Australia
ENH-024 [EBS]	U.K.
ENH-025 [F]	West Germany



Each Individual P.C. Board Location



① ENH-024-1 REC. Out Control P.C. Board Ass'y
③ ENH-024-3 Function P.C. Board Ass'y
④ ENH-024-4 Tone Control P.C. Board Ass'y
⑤ ENH-024-5 Headphone & Speaker SW. P.C. Board Ass'y
⑥ ENH-024-6 AC Outlet P.C. Board Ass'y

Transistors

Item	Part Number	Description	Maker
Q101	2SC945A(P,Q)	Silicon	NEC
Q102	2SA733A(P,Q)	Silicon	NEC
Q103	2SC945A(P,Q)	Silicon	NEC
Q131	2SA733A(P,Q)	Silicon	NEC
Q171	2SC945A(P,Q)	Silicon	NEC
Q801	2SD1265A(O,P)	Silicon	Matsushita
Q802	2SB941A(P,Q)	Silicon	Matsushita
Q901	2SC2240(GR,BL)	Silicon	Toshiba
Q902	2SC2240(GR,BL)	Silicon	Toshiba
Q903	2SC945A(P,Q)	Silicon	NEC
Q904	2SC945A(P,Q)	Silicon	NEC
Q905	2SA733A(P,Q)	Silicon	NEC
Q906	2SC1815(Y,GR)	Silicon	Toshiba

ICs

Item	Part Number	Description	Maker
IC101	HD38702A32	I.C.	Hitachi
IC102	LC7815H	I.C.	Sanyo
IC103	TC4016BP	I.C.	Toshiba
IC401	NJM4558D-D	I.C.	JRC
IC701	STK4171MK2	I.C.	Sanyo

Diodes

Item	Part Number	Description	Maker
D101	1S2473	Silicon	Rohm
D131	1S2473	Silicon	Rohm
D132	1S2473	Silicon	Rohm
D151	SLH-34VC50F	L.E.D.	Rohm
D152	SLH-34VC50F	L.E.D.	Rohm
D153	SLH-34VC50F	L.E.D.	Rohm
D154	SLH-34VC50F	L.E.D.	Rohm
D155	SLH-34VC50F	L.E.D.	Rohm
D156	SLH-34VC50F	L.E.D.	Rohm
D171	1S2473	Silicon	Rohm
D172	RD4.7EB3	Zener	NEC
D510	1S2473	Silicon	Rohm
D801	S3V20F	Silicon	Sindengen
D802	S3V20F	Silicon	Shindengen
D803	S3V20F	Silicon	Shindengen
D804	S3V20F	Silicon	Shindengen
D805	RD10EB3	Zener	NEC
D806	RD10EB3	Zener	NEC
D807	1S2473	Silicon	Rohm
D901	1S2473	Silicon	Rohm
D902	1S2473	Silicon	Rohm
D903	1S2473	Silicon	Rohm

Capacitors

Item	Part Number	Description			□
C101	QCF31HP-103	0.01MF	50V	Ceramic	
C102	QCF31HP-103	0.01MF	50V	Ceramic	
C103	QCF31HP-103	0.01MF	50V	Ceramic	
C104	QCF31HP-103	0.01MF	50V	Ceramic	
C105	QCF31HP-103	0.01MF	50V	Ceramic	
C106	QCY31HK-101	100pF	50V	Ceramic	
C131	QET51AM-108	1000MF	10V	Electro	
C132	QET61HM-474	0.47MF	50V	Electro	
C133	QCF31HP-473	0.47MF	50V	Ceramic	
C134	QET61HM-474	0.47MF	50V	Electro	
C135	QET61HM-475	4.5MF	50V	Electro	
C171	QCF31HP-102	1000pF	50V	Ceramic	
C172	QCF31HP-103	0.01MF	50V	Ceramic	
C351	QET61CM-476	47MF	16V	Electro	
C352	QET61CM-476	47MF	16V	Electro	
C353	QCF31HP-103	0.01MF	50V	Ceramic	
C401	QCS31HJ-560	56pF	50V	Ceramic	
C402	QCS31HJ-560	56pF	50V	Ceramic	
C403	QCY31HK-101	100pF	50V	Ceramic	
C404	QCY31HK-101	100pF	50V	Ceramic	

Capacitors

Item	Part Number	Description			□
C405	QET61HM-474	0.47MF	50V	Electro	
C406	QET61HM-474	0.47MF	50V	Electro	
C407	QET61CM-476	47MF	16V	Electro	
C408	QET61CM-476	47MF	16V	Electro	
C409	QET61HM-225	2.2MF	50V	Electro	
C416	QCY31HK-102	1000pF	50V	Ceramic	
C501	QCY31HK-181	180pF	50V	Ceramic	
C502	QCY31HK-181	180pF	50V	Ceramic	
C503	QFN31HK-273	0.027MF	50V	Mylar	
C504	QFN31HK-273	0.027MF	50V	Mylar	
C551	QCF31HP-103	0.01MF	50V	Ceramic	F
C552	QCF31HP-103	0.01MF	50V	Ceramic	F
C553	QCF31HP-103	0.01MF	50V	Ceramic	F
C554	QCF31HP-103	0.01MF	50V	Ceramic	
C555	QCF31HP-103	0.01MF	50V	Ceramic	B
C555	QCF31HP-103	0.01MF	50V	Ceramic	C
C555	QCF31HP-103	0.01MF	50V	Ceramic	D
C555	QCF31HP-103	0.01MF	50V	Ceramic	EBS
C561	QCY31HK-101	100PF	50V	Ceramic	F
C562	QCY31HK-101	100PF	50V	Ceramic	F
C563	QCY31HK-101	100PF	50V	Ceramic	F
C564	QCY31HK-101	100PF	50V	Ceramic	F
C565	QCY31HK-101	100PF	50V	Ceramic	F
C566	QCY31HK-101	100PF	50V	Ceramic	F
C567	QCY31HK-101	100PF	50V	Ceramic	
C568	QCY31HK-821	820PF	50V	Ceramic	
C601	QFN31HK-153	0.015MF	50V	Mylar	
C602	QFN31HK-153	0.015MF	50V	Mylar	
C603	QFN31HK-823	0.082MF	50V	Mylar	
C604	QFN31HK-823	0.082MF	50V	Mylar	
C605	QCY31HK-332	3300pF	50V	Ceramic	
C606	QCY31HK-332	3300pF	50V	Ceramic	
C607	QFN31HK-183	0.018MF	50V	Mylar	
C608	QFN31HK-183	0.018MF	50V	Mylar	
C609	QCY31HK-221	220pF	50V	Ceramic	
C610	QCY31HK-221	220pF	50V	Ceramic	
C611	QCY31HP-122	1200pF	50V	Ceramic	
C612	QCY31HK-122	1200pF	50V	Creramic	
C701	QET61HM-105	1MF	50V	Electro	
C702	QET61HM-105	1MF	50V	Electro	
C703	QCY31HK-121	120PF	50V	Ceramic	
C704	QCY31HK-121	120PF	50V	Ceramic	
C705	QCY31HK-101	100PF	50V	Ceramic	
C705	QCY31HK-271	270PF	50V	Ceramic	F
C706	QCY31HK-101	100PF	50V	Ceramic	
C706	QCY31HK-271	270PF	50V	Ceramic	F
C707	QCS31HJ-5R0	5PF	50V	Ceramic	
C708	QCS31HJ-5R0	5PF	50V	Ceramic	
C709	QET61AM-476	47MF	10V	Electro	
C710	QET61AM-476	47MF	10V	Electro	
C711	QET61HM-226	22MF	50V	Electro	
C712	QET61HM-226	22MF	50V	Electro	
C713	QET61HM-475	4.7MF	50V	Electro	
C714	QET61HM-475	4.7MF	50V	Electro	
C715	QEN51HM-107	100MF	50V	Electro	
C716	QET61HM-106	10MF	50V	Electro	
C717	QCF31HP-473	0.047MF	50V	Ceramic	
C718	QCF31HP-473	0.047MF	50V	Ceramic	
C719	QCF31HP-473	0.047MF	50V	Ceramic	
C720	QCF31HP-473	0.047MF	50V	Ceramic	
C721	QCF31HP-473	0.047MF	50V	Ceramic	F
C722	QCF31HP-473	0.047MF	50V	Ceramic	F
C723	QCF31HP-473	0.047MF	50V	Ceramic	F
C724	QCF31HP-473	0.047MF	50V	Ceramic	F
C801	QEZ0061-478	4700MF		Electro	F
C802	QEZ0061-478	4700MF		Electro	F
C803	QET61CM-226	22MF	16V	Electro	
C804	QET61CM-226	22MF	16V	Electro	
C805	QCE22HP-103A	0.01MF	500V	Ceramic	
C805	QFM32AK-104	0.1MF	100V	Mylar	F
C806	QCE22HP-103A	0.01MF	500V	Ceramic	
C806	QFM32AK-104	0.1MF	100V	Mylar	F
C807	QET61HM-225	2.2MF	50V	Electro	
C901	QET61AM-476	47MF	10V	Electro	
C902	QCF31HP-103	0.01MF	50V	Ceramic	

⚠: Safty Parts
The column maked with □ indicates the area.
Parts without character in the column are used commonly regardless of delivery area.

Resistors

Item	Part Number	Description			□
R101	QRD141J-103S	10K	1/4W	Carbon	
R102	QRD141J-103S	10K	1/4W	Carbon	
R103	QRD141J-103S	10K	1/4W	Carbon	
R104	QRD141J-103S	10K	1/4W	Carbon	
R105	QRD141J-103S	10K	1/4W	Carbon	
R106	QRD141J-103S	10K	1/4W	Carbon	
R107	QRD141J-103S	10K	1/4W	Carbon	
R108	QRD141J-473S	47K	1/4W	Carbon	
R109	QRD141J-333S	33K	1/4W	Carbon	
R110	QVP4A0B-103	10K	0.1W	Variable	
R111	QRD141J-301S	300	1/4W	Carbon	
R112	QRD141J-102S	1K	1/4W	Carbon	
R113	QRD141J-222S	2.2K	1/4W	Carbon	
R114	QRD141J-103S	10K	1/4W	Carbon	
R115	QRD141J-222S	2.2K	1/4W	Carbon	
R116	QRD141J-103S	10K	1/4W	Carbon	
R117	QRD141J-103S	10K	1/4W	Carbon	
R131	QRD141J-152S	1.5K	1/4W	Carbon	
R132	QRD141J-152S	1.5K	1/4W	Carbon	
R133	QRD141J-152S	1.5K	1/4W	Carbon	
R135	QRD141J-104S	100K	1/4W	Carbon	
R136	QRD141J-105S	1M	1/4W	Carbon	
R137	QRD141J-223S	22K	1/4W	Carbon	
R138	QRD141J-223S	22K	1/4W	Carbon	
R139	QRD141J-223S	22K	1/4W	Carbon	
R171	QRD141J-102S	1K	1/4W	Carbon	
R172	QRD141J-473S	47K	1/4W	Carbon	
R173	QRD141J-473S	47K	1/4W	Carbon	
R174	QRD141J-102	1K	1/4W	Carbon	
R178	QRD141J-100S	10	1/4W	Carbon	
⚠ R353	QRZ0062-330	33	1/4W	Fusible	
⚠ R354	QRZ0062-330	33	1/4W	Fusible	
⚠ R401	QRZ0062-330	33	1/4W	Fusible	
⚠ R402	QRZ0062-330	33	1/4W	Fusible	
R403	QRD141J-102S	1K	1/4W	Carbon	
R404	QRD141J-103S	10K	1/4W	Carbon	
R405	QRD141J-104S	100K	1/4W	Carbon	
R406	QRD141J-104S	100K	1/4W	Carbon	
R407	QRD141J-104S	100K	1/4W	Carbon	
R408	QRD141J-104S	100K	1/4W	Carbon	
R409	QRD141J-102S	1K	1/4W	Carbon	
R410	QRD141J-102S	1K	1/4W	Carbon	
R411	QRD141J-104S	100K	1/4W	Carbon	
R412	QRD141J-104S	100K	1/4W	Carbon	
R413	QRD141J-472S	4.7K	1/4W	Carbon	
R414	QRD141J-472S	4.7K	1/4W	Carbon	
R450	QRD141J-222S	2.2K	1/4W	Carbon	
R451	QVZ5205-004	10K(B)		Variable	
R501	QRD141J-334S	330	1/4W	Carbon	
R502	QRD141J-334S	330K	1/4W	Carbon	
R505	QRD141J-224S	220K	1/4W	Carbon	
R506	QRD141J-224S	220K	1/4W	Carbon	
R507	QRD141J-223S	22K	1/4W	Carbon	
R508	QRD141J-223S	22K	1/4W	Carbon	
R509	QRD141J-683S	68K	1/4W	Carbon	
R510	QRD141J-683S	68K	1/4W	Carbon	
R511	QRD141J-122S	1.2K	1/4W	Carbon	
R512	QRD141J-101S	100	1/4W	Carbon	
R513	QVZ5604-002	250K(B)		Variable	
R601	QRD141J-203S	20K	1/4W	Carbon	
R602	QRD141J-203S	20K	1/4W	Carbon	
R603	QRD141J-362S	3.6K	1/4W	Carbon	
R604	QRD141J-362S	3.6K	1/4W	Carbon	
R605	QRD141J-472S	4.7K	1/4W	Carbon	
R606	QRD141J-472	4.7K	1/4W	Carbon	
R607	QRD141J-821S	820	1/4W	Carbon	
R607	QRZ5205-001	250K(G)		Variable	
R608	QRD141J-821S	820	1/4W	Carbon	
R609	QRZ5206-001	100K		Variable	
R610	QVZ5206-001	100K		Variable	
R701	QRD141J-102S	1K	1/4W	Carbon	
R702	QRD141J-102S	1K	1/4W	Carbon	
R703	QRD141J-913S	91K	1/4W	Carbon	
R704	QRD141J-913S	91K	1/4W	Carbon	
R705	QRD141J-621S	620	1/4W	Carbon	
R706	QRD141J-621S	620	1/4W	Carbon	
R707	QRD141J-123S	12K	1/4W	Carbon	
R708	QRD141J-123S	12K	1/4W	Carbon	
R709	QRD141J-823S	82K	1/4W	Carbon	
R710	QRD141J-823S	82K	1/4W	Carbon	
R711	QRD141J-362S	3.6K	1/4W	Carbon	

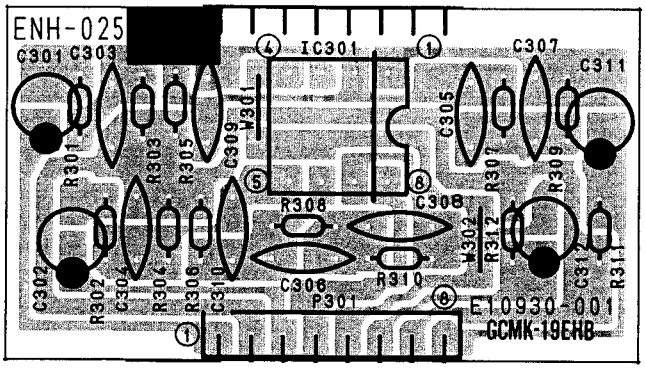
Resistors

Item	Part Number	Description			□
R712	QRD141J-362S	3.6K	1/4W	Carbon	
R715	QRD141J-272S	2.7K	1/4W	Carbon	
R716	QRD141J-272S	2.7K	1/4W	Carbon	
⚠ R717	QRX012J-R22A	0.22	1W	O.M.Film	
⚠ R718	QRX012J-R22A	0.22	1W	O.M.Film	
⚠ R719	QRD145J-101S	100	1/4W	UNF.Carbon	
R721	QRD141J-100S	10	1/4W	Carbon	
R722	QRD141J-100S	10	1/4W	Carbon	
R723	QRZ0062-100	10	1/4W	Fusible	F
R724	QRZ0062-100	10	1/4W	Fusible	F
R725	QRZ0062-100	10	1/4W	Fusible	F
R728	QRZ0062-100	10	1/4W	Fusible	F
R729	QRD141J-272S	2.7K	1/4W	Carbon	
R730	QRD141J-102S	1K	1/4W	Carbon	
⚠ R771	QRG012J-331A	330	1W	O.M.Film	
⚠ R772	QRG012J-331A	330	1W	O.M.Film	
R803	QRD141J-682S	68K	1/4W	Carbon	
R804	QRD141J-682S	68K	1/4W	Carbon	
R805	QRD141J-103S	10K	1/4W	Carbon	
R806	QRD141J-473S	47K	1/4W	Carbon	
R807	QRD141J-223S	22K	1/4W	Carbon	
⚠ R822	QRZ0062-100	10	1/4W	Fusible	
⚠ R823	QRZ0062-100	10	1/4W	Fusible	
R901	QRD141J-332S	3.3K	1/4W	Carbon	
R902	QRD141J-332S	3.3K	1/4W	Carbon	
R903	QRD141J-392S	3.9K	1/4W	Carbon	
R904	QRD141J-392S	3.9K	1/4W	Carbon	
R905	QRD141J-104S	100K	1/4W	Carbon	
R906	QRD141J-823S	82K	1/4W	Carbon	
R907	QRD141J-683S	68K	1/4W	Carbon	
R908	QRD141J-334S	330K	1/4W	Carbon	
R909	QRD141J-101S	100	1/4W	Carbon	
⚠ R910	QRG022J-681A	680	2W	O.M.Film	
R911	QRD141J-103S	10K	1/4W	Carbon	
R912	QRD141J-562S	5.6K	1/4W	Carbon	
R913	QRD141J-562S	5.6K	1/4W	Carbon	

Others

Item	Part Number	Description	□
	E10931-102	Circuit Board	B
	E10931-102	Circuit Board	C
	E10931-102	Circuit board	D
	E10931-102	Circuit Board	F
	E10931-102BS	Circuit Board	EBS
	E70859-001	Earth Plate	
	QMC0437-002	2P AC Outlet	
	E65508-002	Tab	B
	E65508-002	Tab	D
	E65508-002	Tab	EBS
	E65508-002	Tab	F
	E03675-004	Fuse Clip	B
	EMG7331-001	Fuse Clip	D
	EMG7331-001	Fuse Clip	EBS
	EMG7331-001	Fuse Clip	F
J171	QMS3501-018	Mini Jack	
J172	QMS2501-105	Mini Jack	
J401	QMS6313-015	Mic Jack	
J504	EMN00TV-201A	2P Pin Jack	
J501	EMN00TV-402A	4P Pin Jack	
J502	EMN00TV-402A	4P Pin Jack	
J503	EMN00TV-402A	4P Pin Jack	
J701	EMB10TV-801A	Speaker Terminal	
J771	QMS6312-020	7P Head Phone Jack	
P101	E67764-003	Terminal Ass'y	
RY701	ESK6D24-213	Relay	
S151	ESP0001-007	Push Switch	
S152	ESP0001-007	Push Switch	
S153	ESP0001-007	Push Switch	
S154	ESP0001-007	Push Swutch	
S501	QST2101-E05	Push Switch	
S502	QST2101-E06	Push Switch	
S701	QST2101-E07	Push Switch	
RT001	E67764-302	Wrapping Terminal	B
RT001	E67764-202	Wrapping Terminal	D
RT001	E67764-202	Wrapping Terminal	EBS
RT001	E67764-202	Wrapping Terminal	F
RT002	E67764-203	Terminal Ass'y	D
RT002	E67764-203	Terminal Ass'y	EBS
RT002	E67764-203	Terminal Ass'y	F
RT501	E67764-002	Terminal Ass'y	
RT801	E67764-103	Wrapping Terminal	

3-(2) ENH-025□ Mojulie P.C. Board Ass'y



Item	Part Number	Description			□
			Maker		
IC301	NJM4558D	I.C	JRC		
C301	QEK61EM-475	Electro	4.7M	25V	
C302	QEK61EM-475	Electro	4.7M	25V	
C303	QCY31HK-101	Ceramic	100P	50V	
C303	QCY31HK-471	Ceramic	470P	50V	G
C304	QCY31HK-101	Ceramic	100P	50V	
C304	QCY31HK-471	Ceramic	470P	50V	G
C305	QCY31HK-182	Ceramic	1800P	50V	
C306	QCY31HK-182	Ceramic	1800P	50V	
C307	QCY31HK-682	Ceramic	6800P	50V	
C308	QCY31HK-682	Ceramic	6800P	50V	
C309	QCY31HK-101	Ceramic	100P	50V	
C310	QCY31HK-101	Ceramic	100P	50V	
C311	QEK61EM-475	Electro	4.7M	25V	
C312	QEK61EM-475	Electro	4.7M	25V	
R301	QRD161J-222	Carbon	2.2K	1/4W	
R302	QRD161J-222	Carbon	2.2K	1/4W	
R303	QRD161J-473	Carbon	47K	1/4W	
R304	QRD161J-473	Carbon	47K	1/4W	
R305	QRD161J-751	Carbon	450	1/4W	
R306	QRD161J-751	Carbon	750	1/4W	
R307	QRD161J-393	Csrbon	39K	1/4W	
R308	QRD161J-393	Carbon	39K	1/4W	
R309	QRD161J-474	Carbon	470K	1/4W	
R310	QRD161J-474	Carbon	470K	1/4W	
R311	QRD161J-104	Carbon	100K	1/4W	
R312	QRD161J-104	Carbon	100K	1/4W	
	E10930-001	Circuit Board			
P301	EMV5101-008B	Plug Ass'y			

G: West Germany only

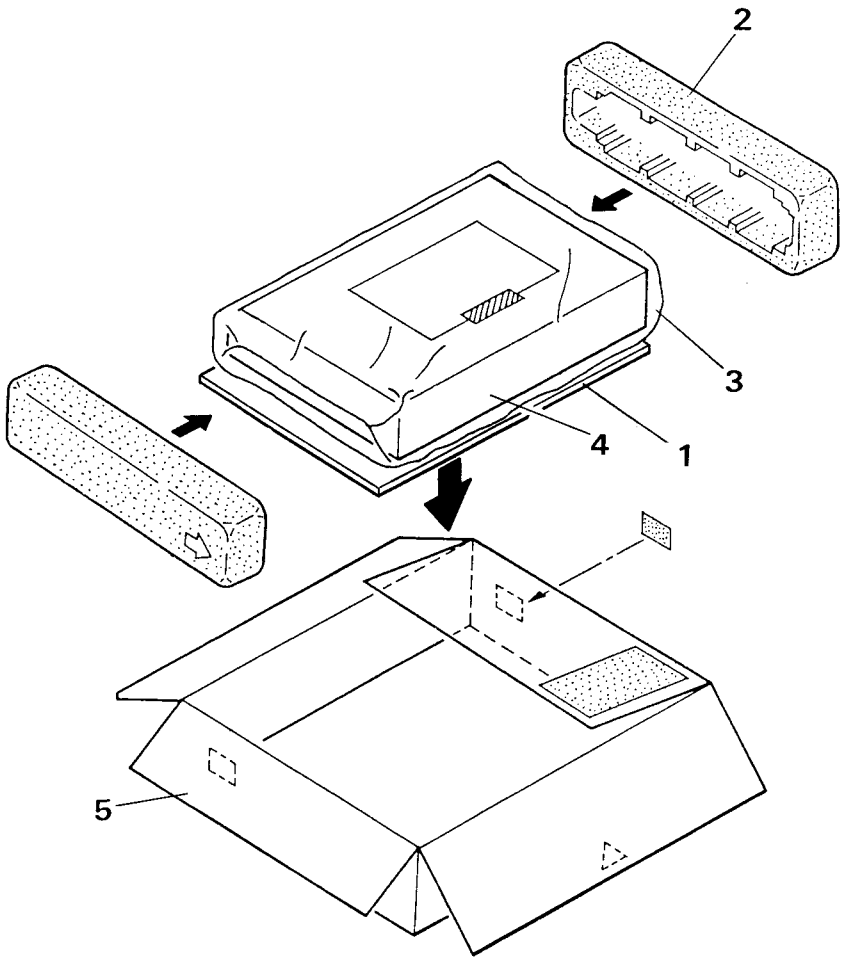
4. Accessories List

Part Number	Part Name	Description	Area
E30580-1159A	Instruction Book		J,C,U,P,PG,E,A,G
E30580-1159ABS	Instruction Book		BS
QMF51A2-1R6L	Fuse		U,PG
QMF51A2-R80L	Fuse		P
E6518-4	Envelope		U,P,PG
E35497-015	Caution Sheet	220V	U,PG
E35497-013	Caution Sheet	120V	P
E04056	Siemens Plug		U,PG
BT20054-006A	FTZ Information		G
BT20048A	Warranty Card		J,P,PG
BT20064	Warranty Card		G
BT20060	Warranty Card		BS
BT20029C	Warranty Card		A
BT20025G	Warranty Card		C
BT20046B	Service Information Card		J,P,PG
BT20044D	Safety Instruction Sheet		J
BT20071	Service Centre List		C
E41202-2	Envelope		J,C,U,P,PG,E,A,G
E41202-2B	Envelope		BS
BT20066	EEC Agency		G,BS
E67142-1R6L	Fuse Label		U,PG
E67142-R80L	Fuse Label		P

The Marks for Designated Areas.

J..... U.S.A.
C..... Canada
E..... Europe
G..... West Germany
A..... Australia
P,PG..... U.S.Military Market
BS..... U.K.
U..... Other Countries

5. Packing Materials and Part Numbers



No.	Part Number	Part Name	Description	Area
1	E71393-001	Sheet Ass'y		
2	NZ-AE50E	Packing Pad	E24578-001 (L) E24578-002 (R)	
3	E68142-010	Protect Sheet		J, C, U, P, PG, E, A, G
	E68142-010B	Pretect Sheet		BS
4	E36997-027	Mirror Mat		
5	PK-AE50E	Paking Case	E300382-471	

The Marks for Designated Areas.

J . . . . . U.S.A.
C . . . . . Canada
E . . . . . Europe
G . . . . . West Germany
A . . . . . Australia
P, PG . . . . . U.S. Military Market
BS . . . . . U.K.
U . . . . . Other Countries